

are equal to quadruple or quintuple the strengths that are employed of the former drug.

3. The duration of the healing and soothing powers of hydrobromate of scopolamine as compared with those of equal doses of sulphate of atropine in cases of plastic iritis does not seem to be so lasting with the former as with the latter drug, this being true in the majority of cases even when the latter drug is used in four or five times the strength-doses as the former.

4. For quick and active measures, which are so eminently necessary in incipient cases of plastic iritis, and during the early stages of inflammatory reaction, hydrobromate of scopolamine is to be preferred to sulphate of atropine.

5. Where prolonged use of such drugs is necessary, as in many cases of the chronic form of the disease with subacute exacerbations, the alternate employment of hydrobromate of scopolamine and sulphate of atropine seems empirically to be the best method of local administration that has been devised.

6. As clinically employed, the best salt of the alkaloid seems to be the hydrobromate; the best method of instillation appears to be that which is accomplished by dropping the solution upon the upper corneal limbus whilst the lower punctum is everted and the corresponding canaliculus is pressed upon; and the most efficient amount to be used at one sitting is two drops of a one-tenth of 1 per cent. strength (1 to 500), repeated, if necessary, as often as three times during the course of an hour, and preceded, when desired, as in some instances where there are much irritation and pain, by two drops of a 2 per cent. solution of hydrobromate of cocaine a few minutes before each instillation of the scopolamine.

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#### ON THE IDENTITY OF THE CONDITIONS COMMONLY KNOWN AS WANDERING RASH OF THE TONGUE AND MOELLER'S SUPERFICIAL GLOSSITIS.

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SYNONYMS. *Pityriasis linguae* (Rayer, Vogel, Betz). *Lichenoïde lingual* (Vanlair). *Intertrigo linguae* (Santluis). *État tigré de la langue* (Bridou). *État lichenôide de la langue* (Gübler). *Langue géographique* (Bergeron). Wandering rash (Barker, Butlin). *Syphilis desquamative de la langue* (Parrot). *Flüchtige gutartige Plaques der Zungenschleimhaut* (Caspary). *Desquamation épithéliale de la langue* (Gautier). *Glossite exfoliatrice marginée* (Fournier, Lemonnier). *Kreisfleckige Exfoliation der Zunge* (Unna). *Eczema en aires ou marginée*

*desquamatif* (Besnier). *Oberflächliche Exkoriationen an der Zunge* (Hack). *Circinate Eruption of the Tongue* (Colcott-Fox). *Ezema de la langue* (de Molènes). *Chronische Exkoriationen an der Zunge* (Moeller). *Moellersche Glossitis Superficialis* (Michelson).

THE affection known to English medical writers under the terms wandering rash of the tongue or geographical tongue is sufficiently common to be familiar to most physicians in charge of large outpatient clinics where the examination of the tongue is a matter of routine. Although, as indicated by its synonyms, it has been frequently described, yet its etiology remains conjectural and its relation to various morbid conditions uncertain, while information regarding its pathological anatomy is meagre and incomplete.

Another lingual condition known hitherto apparently only to German observers under the name of Moeller's superficial glossitis, and generally considered by them distinct from the preceding, is even more imperfectly understood.

Outside of the country where it was first described it seems to have attracted no notice from clinicians.

The object of the following paper is to present the clinical and pathological features of several cases illustrating these conditions in connection with a review of their literature. The patients came under my observation in the Clinic for Diseases of the Throat at the Massachusetts General Hospital. From five of them small portions of the morbid areas were painlessly removed under cocaine, an operation to which the patients submitted willingly and with interest. The histological work was done in the pathological laboratory of the Harvard Medical School under the supervision of Dr. Councilman, to whom and to Dr. Mallory I desire to express my thanks for much kindly interest and advice.

CASE I.—L. G., female, single, aged twenty-one years, American, came, April 25, 1895, to the clinic for an atrophic rhinitis, exhibiting also moderate anemia and poor nutrition, but otherwise no discoverable abnormality. On May 24th the patient returned and presented a striking alteration of the tongue, which she had noticed for the first time a few days previously. A short distance anterior to the circumvallate papillæ were two red, more or less oval areas, one on each side of the middle line of the dorsum, measuring, respectively, 1.5 by 2 cm. and 2 by 4 cm.; the surface of each being smooth, clean, and devoid of any trace of filiform papillæ, though the fungiform remained; each area was for half its circumference abruptly bordered by a slightly but sharply elevated whitish wall about 2 mm. in diameter, easily removable by scraping, by which there was disclosed underlying it and corresponding to it a smooth, vivid red, but not bleeding surface. For the remainder of its circumference each of the red areas was indistinctly limited, becoming gradually merged into normal tissue by a reappearance and progressive increase in size of the filiform papillæ.

Anteriorly on the dorsum were two smaller areas similar to the preceding, except for a greater predominance of the fungiform papillæ, a condition naturally to be expected from the anatomical structure of the part. On May 28th the two anterior areas had disappeared and the two posterior ones were rapidly returning to a normal appearance, the whitish border being no longer visible, and the desquamated regions showing a renewed growth of filiform papillæ.

By June 10th the tongue had resumed its customary look.

On August 2d a small area of desquamation similar in characteristics to the preceding appeared on the dorsum, and in two days attained the size of a ten-cent piece. This was followed in a week by another, and a week later by still a third, which rapidly enlarged, covering in a few days the whole posterior half of the dorsum anterior to the circumvallate papillæ, at which time the first patch had disappeared and the second one was rapidly resuming a normal appearance.

On September 1st the tongue would not have attracted attention except for a slight general reddening posteriorly, suggesting that the epithelium was thinner than elsewhere.

On September 12th a new outbreak occurred which was observed from its incipency. On the dorsum there appeared a circular whitened area about 2 mm. in diameter, slightly elevated, showing on close examination a swelling and whitening of the filiform papillæ. In twenty-four hours this had doubled its extent and exfoliated in the centre, leaving a bright-red smooth surface with an elevated narrow, whitish border. In twenty-four hours this border for half its circumference had disappeared, but its remaining half continued to enlarge and in its subsequent history repeated the phenomena of its predecessors.

There were practically no subjective symptoms referable to the tongue.

No evidence was obtainable of syphilitic, tubercular, or rheumatic disease in the patient or in her family.

*Pathological anatomy.* In a section taken at right-angles to the elevated border, thus including normal tissues on the one side and the desquamated area on the other (hardened in Mueller's fluid, imbedded in celloidin, and stained in hæmatoxylin and eosin), the following conditions are evident: Immediately in front of the elevated border and before any surface-alterations can be perceived, a narrow, compact wedge of polynuclear leucocytes is seen in the superficial layers of the rete mucosa, being a direct prolongation of a compact mass of leucocytes which occupies the region of the elevated border, infiltrating the epithelium for its whole extent and dissecting up its superficial layers, extending also in a scattering fashion to the deeper layers of the rete mucosa. In the infiltrated area the tissue-cells appear swollen, the nuclei stain faintly or not at all, while at the elevated border the superficial epithelial cells are exfoliated in coherent masses. As soon as exfoliation has occurred the infiltration subsides, and at a distance of two or three millimetres from the elevated border only a few scattering leucocytes are met with. The lower three or four layers of epithelial cells escape desquamation, but their nuclei stain faintly or not at all. At a distance of three to four millimetres from the border a new layer of epithelial cells appears with sharply staining nuclei, and from that point regeneration of the epithelial covering slowly proceeds. In the desquamated areas nothing is left to mark the seat of the filiform papillæ, except in the case of the larger ones, where a layer or two of

intact epithelial cells indicates their former point of attachment. The fungiform papillæ part with their epithelial covering, but otherwise are left unaffected.

CASE II.—A. B., female, married, aged forty-nine years, Nova Scotian. On October 12, 1895, patient came for soreness of tongue with neuralgic pains, excited by hot or irritating food, coming on five months ago and increasing since, although varying in intensity, aggravated by irritating ingesta, and attended by the presence of whitish lines and raw patches on the tongue. The appearance and history of the patient indicated chronic invalidism of a dyspeptic and uterine type, with frequent pains in back, apparently of a rheumatic nature. Nutrition and color were fairly good. On the dorsum of the tongue, just in front of the circumvallate papillæ, were two conspicuous areas, reddened and smooth, containing reddened fungiform papillæ, but denuded of filiform papillæ except for the merest stump-like vestiges. Each area for half its circumference was bounded by a narrow, slightly elevated whitish line of swollen papillæ, and for the remaining half of its circumference exhibited a gradual transition to normal tissue. With the exception of the preservation of distinct macroscopic traces of the filiform papillæ, the clinical picture presented by these areas was entirely similar to those in the preceding case.

Anteriorly on the dorsum the left side was occupied by a sharply defined area of an elongated oval shape, distinguished from the neighboring normal tissue by its redder coloration, by the presence of numerous irregular furrows and wrinkles, and by an alteration in both forms of papillæ, the filiform appearing shortened, thickened, and reddened, the fungiform also reddened and symmetrically increased in size. Traversing this area, generally at right-angles to its long diameter, were several irregularly curved whitish lines, seen on close inspection to consist of one or two rows of markedly enlarged papillæ, each papilla covered by a thin whitish layer, removable by gentle scraping. Immediately behind the concavity of each curved line the papillæ appeared more swollen and more brightly reddened than those adjoining the convexity, suggesting very directly that the process travelled in the direction of the convexity.

In the course of the next two months repeated examinations showed a gradual shifting in position of the whitish lines with their attendant papillary changes. As previously noted, the more delicate filiform papillæ in the posterior half of the dorsum were stripped for nearly half their whole length, while the stouter ones nearer the tip lost only their upper portions, preserving very distinctly broadened and reddened stump-like bases.

Examination of two specimens excised from the anterior portions of the dorsum showed similar appearances.

The alterations forming the macroscopic margin of the process consist in a sharply circumscribed compact aggregation of polynuclear leucocytes in the upper layers of the rete mucosa, exhibiting a progress in the direction of normal tissue as a narrow cuneiform prolongation beneath the epithelium; the infiltration at the seat of its greatest intensity being attended by a separation and exfoliation of the epithelial cells, so that leucocytes are seen escaping from the denuded surface of the rete mucosa. At the same time the tissue-cells of the affected area appear swollen and stand apart, with intervening deficiencies suggesting an exudate, while their nuclei stain faintly. Behind the point of exfoliation the infiltration

rapidly subsides and the tissue-cells resume their customary appearance, while the macroscopically reddened surface is seen to have retained only the lower two or three layers of its epithelial cells. The leucocytes are seen to occur in a scattering fashion as far as the submucosa.

CASE III.—M. H., female, married, aged thirty-seven years, American. Previous history negative except for a right facial paralysis of eight years' standing, of uncertain origin.

In October, 1894, patient came to clinic for acute pronounced swelling of both submaxillary glands, of four days' duration, attended by headache, malaise, moderate fever, backache, and by a general soreness of the tongue.

Examination showed both submaxillary glands swollen to hen's-egg size, and slightly tender. The dorsum of the tongue showed along sides and near the tip numerous irregularly curved lines one to two millimetres in diameter, slightly elevated, whitish-yellow, forming the boundary between normal tissue and reddened areas superficially denuded of epithelium, with enlarged fungiform papillæ and shortened, broadened filiform papillæ. Along the sides of the dorsum and near the tip were numerous irregular fissures two to three millimetres in depth, bearing no distinct relation to the white lines.

In the course of a week the glandular swelling and constitutional symptoms diminished, while on the tongue a subsidence of the process was evident, the whitish lines becoming less prominent, many disappearing; the areas of swollen papillæ also decreasing in extent. A distinct but slow shifting of these lines was evident. In the course of a month the glandular swelling had disappeared, the lingual epithelium in general was of normal color, but showed on close examination along the sides of the dorsum and near the tip several curved, whitish, narrow, scarcely elevated lines, seemingly below the superficial layer of epithelium, exhibiting a scarcely perceptible movement from day to day (approximately one or two millimetres per week), while in the rear of their line of march both forms of papillæ were slightly larger than elsewhere.

The tongue remained in this quiescent state until July, 1895, when an exacerbation induced the patient to return to the throat-clinic. For several months she had been receiving iodide of potassium on the supposition that the facial paralysis was of syphilitic origin. At this time there were numerous whitish lines distinctly elevated, with a noticeable increase in extent and intensity of the papillary swelling adjoining their concavities. Scattered in the midst of normal tissue were several individually enlarged and whitened papillæ. Moderate soreness of the denuded areas was present, but constitutional symptoms and submaxillary swelling were absent.

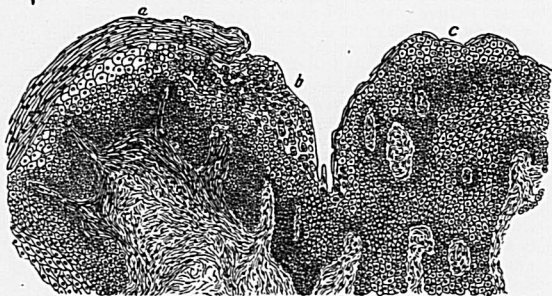
From this time until December, 1895, the patient continued under frequent observations, experiencing at intervals exacerbations of the affection, each lasting from several days to a week, and characterized by the whitish lines becoming more prominent, as well as more numerous, and shifting their position with greater rapidity. Except for the occasion above noted, the discrete, whitened, swollen papillæ did not attract attention and must have resumed a normal appearance within a week.

*Pathological anatomy.* Examination of a section taken during an exacerbation through one of the lines of whitened, enlarged papillæ showed appearances in all respects identical with those of Case II., the upper layers of the rete mucosa being at this point the seat of an

infiltration of leucocytes, attended by swelling of the tissue-cells and oedema, leading to softening and exfoliation of the epithelium.

CASE IV.—A. V., male, aged twenty-five years, single, clerk, American, came to the clinic October 22, 1895, complaining of sore throat of a few days' duration. Previous history was negative, except for several mild attacks of acute articular rheumatism. Admitted venereal exposure, but gave no evidence of syphilis. Tongue always subject to peculiar alterations in appearance without subjective symptoms until eight months ago, since which time it has occasionally been sore. Family history was negative except for a first-cousin, a married woman of thirty-five years, who was stated to have a similar condition of the tongue.

Examination showed fairly good development and nutrition; moderate pallor. Tongue in general of normal color; its dorsum irregularly traversed along the sides and tip by numerous wrinkles and clefts, these regions being also the seat of whitish semilunar lines from one to two centimetres in length, of enlarged filiform and fungiform papillæ; their concavities contiguous to areas in which the clefts are increased in number and depth. In these areas the papillæ are reddened and enlarged, with a roughened surface, apparently denuded of epithelium, this condition in the space of one centimetre or so undergoing a gradual transition to areas but slightly cleft and possessing papillæ of normal color and smoothness, although somewhat enlarged. In all essential details the clinical picture was that frequently presented by Case II.



CASE IV.

Frequent observations during the next three months showed a travelling of these white lines over the dorsum at the average rate of one or two millimetres a day. The changes in position were in general irregular and without definite rule, although at times a certain degree of parallelism was apparent, each line being separated by intervals of two or three centimetres from its successor.

At times areas similar to those of Case I. appeared on the dorsum posteriorly, travelling with rapidity and exhibiting a nearly complete denudation of the delicate filiform papillæ of that region. The identity of this condition with that existing anteriorly was occasionally demonstrated by the transition in unbroken continuity of the one to the other; the

bright red, smooth, unwrinkled areas posteriorly, with their minute vestiges of the filiform papillæ and reddened, but otherwise macroscopically unaltered fungiform papillæ joining by almost imperceptible degrees to the wrinkled anterior areas with their pronounced papillary enlargement.

Microscopical examination was made of two pieces of affected tissue removed at different times, both being from the dorsum near the side and about three centimetres back from the tip. As seen by the accompanying drawing of a section, the appearances were identical with those of the two preceding cases. The superficial layers of the rete mucosa at *b* are the seat of an infiltration of leucocytes, attended by œdema, necrosis of the tissue-cells, and exfoliation of the epithelium; the process has just left the papilla at *c*, nearly denuding it of epithelium, and is travelling in the direction of the as yet normal tissue at *a*.

CASE V.—F. C. G., male, aged thirty years, married, piano-tuner, American, came in December, 1895, for post-nasal catarrh, and presented a tongue with red areas and swollen papillæ, similar to the preceding. The duration could not be ascertained as the patient was not conscious of any abnormality in the organ. The family history was negative. Patient admitted syphilitic infection ten years ago, with secondary symptoms. There was no history of rheumatic trouble.

A section through an affected area showed microscopical appearances like those of the three preceding cases.

CASE VI.—G. H. D., aged fifty-four years, male, canemaker, came to the clinic for scabbing from recent perforation of nasal septum, probably of a simple nature. No history of syphilis or rheumatism. Duration of tongue-trouble uncertain, the organ giving no subjective symptoms. Family history was negative. Examination showed fairly good development and nutrition. Tongue seemed large for mouth, and presented a dorsum everywhere, but particularly at the sides and tip, covered with deep irregular furrows and clefts, producing conspicuous deformity. The sides and bases of these depressions showed, when spread apart, small flattened papillæ of both forms, evidently a pressure-atrophy, while the free surface of the intervening ridges possessed moderately enlarged papillæ.

Along the sides of the dorsum and extending for about a centimetre or two onto the under surface were irregular, more or less semilunar lines, one to two millimetres in diameter, consisting of whitened, thickened epithelium, forming the boundary between normal or apparently normal tissue and roughened, reddened areas, which in the papillary regions consisted of enlarged, reddened filiform and fungiform papillæ, and on the under side of a reddened, finely granular surface of diminished lustre and translucence.

Sections from this case were unfortunately not made, but no doubt could exist as to the identity of its nature with the preceding. It is presented from its exhibiting a stage of the affection in which the process has involved the dorsum in much permanent disfigurement and extended its seat to the under surface.

In addition to these cases, seven others observed by the writer represented the following ages: 11 months, 3 years, 10, 20, 29, 29, and 34 years. The younger patients were examples of the appearances described under Case I., while the older ones were more or less well-developed instances of the later forms of Cases II., III., IV., and V.

A study of the preceding cases leads very directly to the conclusion that their pathological anatomy consists in an acute inflammation of the upper portion of the rete mucosa, attended by necrosis and desquamation of the superficial epithelium, the process tending to repeat itself, and leading, in proportion to the frequency of its recurrence, to a permanent hypertrophy of the affected tissues.

The appearances necessarily vary according to the natural and acquired characteristics of the structures involved. Thus small and delicate filiform papillæ composed of few epithelial elements readily necrose in their entirety, leaving no trace of their former site. Such are the areas seen in the case of children and young adults. With advancing age these papillæ acquire a stouter constitution, with more numerous and better nourished cells; hence their exfoliation is incomplete, the lower central portions persisting as distinct vestiges. This condition, in virtue of frequently recurring inflammatory changes, passes by a gradual transition to the stage of permanent enlargement. As shown by Case IV., a tongue may present nearly complete temporary stripping of filiform papillæ in its posterior central portions, a region comparatively seldom invaded by the process, side by side with and passing into pronounced papillary hypertrophy at the favorite points of localization anteriorly and laterally.

In the fungiform papillæ the alterations induced by the process differ only in virtue of the different structure of the papillæ, and do not require detailed consideration. The transitory alterations of the first stage pass eventually by imperceptible gradations to permanent enlargement consequent upon hypertrophy of the mucous membrane.

The wrinkles, furrows, and clefts of the advanced cases are the natural result of an enlargement of the mucous membrane without proportionate enlargement of the underlying tissue.

The symptomatology is that of a mucous membrane deprived of a certain portion of its epithelial covering. While in general the exposure of the sensitive nerve-terminals is insufficient to excite subjective symptoms during the performance of the ordinary functions of the organ, yet soreness is more readily excited over the exfoliated areas than elsewhere. This was shown experimentally by gentle curetting. With the exception noted in Case II., symptoms suggesting intrinsic nervous disturbance, such as neuralgic pain, itching, paralysis, atrophy, salivation, or changes in sensibility and taste, were absent in all cases.

Although both the clinical history and pathological anatomy of the cases seemed to indicate a parasitic origin, yet the attempts to discover a specific organism have been thus far unsuccessful. The usual surface-bacteria seemed perhaps unusually plentiful. Sections were stained in hæmatoxylin, in Löffler's alkaline methylene-blue, in carbol-fuchsin, as if for tubercle-bacilli, and by the method of Gram-Günther. The

examinations were sufficiently numerous and careful to warrant the statement that the disease is not produced by a bacterium demonstrable by the ordinary methods of staining.

In view of the possible presence of protozoa, scrapings were examined from the surface, both stained and in the fresh state, but with negative result.

There was no constant association of morbid conditions to be noted. Rheumatic symptoms had been present in but two cases. Syphilis was present in two cases, uncertain in five, and almost certainly absent in five. Tuberculosis was noted but once. Gastric derangements were present in nine cases, and absolutely denied in three. Local irritation from carious teeth was present in one case. Submaxillary glandular enlargement was absent in all cases, except for the acute adenitis of Case III., which could hardly have been secondary to the epithelial lesions on the tongue. The occurrence of similar conditions in near relatives was stated to exist in five cases. It was interesting to note that the child of eleven months, with lesions like those in Case I., was the son of a man twenty-nine years of age, who presented appearances similar to those of Cases II., III., IV., and V.

Treatment of the cases was faithfully practised according to methods advocated by different writers, but in no case could any improvement be fairly attributed to the measures employed. In four cases mercury and iodide of potassium, singly and together, were given for some months without effect. Treatment by salicylates and citrates, with restricted diet, was equally ineffectual. Irritant applications, such as chromic acid, produced usually a fresh outbreak of the lesions.

No bibliographical review of the conditions under consideration exists in English, while only incomplete summaries have appeared in French and German. Much of the confusion and diversity of opinion which an examination of the literature reveals is attributable to the tendency of most writers to theorize on purely clinical grounds in the absence of pathological data. In fact, out of the twenty or more authors who have published monographs or reports, only four appear to have made a microscopical examination of the affected tissues.

In 1831 Rayer, in France, described under the name *pityriasis* of the tongue a lingual affection characterized by epithelial desquamation and consequent formation of red areas, situated chiefly at the base of the organ, and attended by burning and other disagreeable sensations. The clinical details are, however, insufficient to determine with precision just what affection the author had before him.

In 1851 Moeller, in Germany, published an account of a new affection which he called simply chronic excoriations of the tongue, characterized by sharply circumscribed red spots, above which the epithelium is thinned or wanting. At the same time the papillæ are hyperæmic,

swollen and thickened, and stand out prominently above the surface. Their seat is particularly the region of the tip and sides, where a severe burning sensation is experienced, preventing the ingestion of even the mildest foods. The condition occurred in six women, of whom five had tapeworm.

In 1853 Betz called attention to an affection similar to that of Moeller, but distinct in that it occurred in five children from four weeks to eight years of age, was characterized by red spots on the dorsum, with acute course repeatedly recurring, exhibiting a desquamation of the filiform papillæ, but preservation of the fungiform, and not attended by subjective symptoms. He considers the process to be ushered in by a hyperæmia of the filiform papillæ without any ulceration, and prefers the name *pityriasis linguæ* to chronic excoriation.

In 1854 Santlus described a lingual affection in a child of two years, which was characterized by a white coating gradually increasing for a period of four to ten days, then becoming membranaceous, cracking superficially and peeling off in shreds, as a result of which the tongue assumed the appearance of a geographical map. In a few days the tongue became of normal appearance, only to be attacked afresh. Salivation accompanied the exacerbations. The process first appeared two weeks after birth. Santlus considered this a histological manifestation rather than a distinct morbid process, to be explained on the theory of a moulting.

In 1864 Bergeron noted the occurrence, especially in children, of areas on the tongue denuded of epithelium, sharply differentiated by their red color from their surroundings and presenting the appearance of a "geographical map." He appears to associate with the above another condition of irregular epithelial thickening, the nature of which is obscure.

In 1869 Gubler gave a careful description of a condition under the name of "*état lichenoïde*," in which small, whitish patches arose on the dorsum of the tongue, proceeded to enlarge and become centrally denuded, thus resulting in the formation of a red spot with a yellowish-white, slightly elevated margin. Dyspepsia and constitutional weakness were associated conditions. Heredity seemed to play a part. The author suggests the possible presence of a specific parasite.

In 1872 Bridou described as well marked and idiopathic a lingual disease ushered in by a slight epithelial thickening anteriorly which exfoliates, leaving small round red spots covered with enlarged papillæ, surrounded partially by a white semilunar margin. The desquamated areas rapidly heal, only to be attacked afresh. The disease began in early childhood, and was generally associated with anæmia and gastric disturbance, but had no special connection with dentition. The author considers this affection identical with that described by Bergeron and

Gubler, but, on the other hand, distinct from the *pityriasis linguæ* of Rayer. He proposes the name "*état tigré*."

In 1880 Bohn mentioned the occurrence of the geographical tongue, without presenting any new facts.

In 1880 there also appeared an elaborate monograph by Vanlair on *Lichenoïde lingual*, described as occurring in persons of all ages (one a woman of seventy), characterized at the beginning by a diffuse growth of the lingual epithelium, which becomes whitish and soon desquamates, forming roundish red spots surrounded by a compact, narrow, whitish margin. The surface of the red areas was stripped of filiform papillæ; but, on the other hand, the fungiform appeared enlarged and increased in number. The process was limited to the dorsum, except in one case, where it extended to the under surface. Vanlair considered the disease to consist in a subacute inflammation of the papillæ. In the case of the filiform papillæ the inflammatory enlargement produces, according to him, compression of the parenchyma, and more or less complete atrophy results. Since the fungiform papillæ are affected only in their cortical layer, the atrophic process is consequently much less marked. He terms the affection *stamino-papillitis atrophicans*.

In 1880 Caspary described an affection similar to the above, without, however, knowing the French literature. While he found it generally a benign disease of youth, in one instance it appeared sufficiently serious, being associated with and apparently the cause of much local soreness, wrinkling and deep fissuring of the organ, with an extension of the process to the under surface. No constant association with any morbid condition was noted.

The first English account was a report by Barker, in 1880, of several cases occurring in weak children with a tendency to eczema. Itching and salivation were noted once. The type of the affection was that described by Vanlair. The author considered the cause probably the reflex manifestation of a nervous affection.

In 1881 Parrot expressed the belief, as the result of his statistics, that this disease was a manifestation of syphilis. He was the first to describe the histological appearances. In sections he found a thickening of the epithelium, an increase in volume of the cells of the corium and also the Malpighian body, which was also the seat of an active cell-proliferation. In the papillæ and subjacent portions of the derma was a great number of lymphoid bodies, singly and in groups. Parrot regards the derma as the primary and chief seat of the disease, the superficial appearances resulting secondarily.

In 1881 Unna described the disease as exhibiting three stages of development:

1. Scattered patches of simple exfoliation from epithelial swelling and loosening.

2. Red areas of varying shapes, with white elevated margin.

3. A deeper desquamation, giving a terraced appearance, found in two cases.

He considers the affection as purely epithelial in seat, the rete mucosa never being affected. Syphilis played no part, but probably there was some connection with gastric disorders. All of his fourteen cases were young adults. He distinguishes the disease from those exfoliations of the lingual epithelium occupying large areas, often painful, generally transient, not recurring in the same place, and showing by their course that they owe their existence to a wholly irregular exfoliative process, occurring generally at the close of digestive disturbances. His cases of geographical tongue were associated with a desquamative condition of the palms and soles. He considers that these regions exhibit a peculiar preference for this superficial desquamation, although it is possible that the thick epithelial covering of the dorsum of the tongue and of the palms and soles may permit the perception of a condition not apparent on thinner surfaces, although actually occurring there as well. Furthermore, these regions, being richer in nerve-endings than others, may more readily experience disorders of nutrition.

In 1881 Gautier described as follows three types of epithelial desquamation of the tongue, based on his own observations and those already published :

1. A sharply margined form showing no especial thickening of the margin, and only slight increase in size.

2. A festooned variety with thickened serpiginous margin, rapidly changing in size and location.

3. The chronic excoriation of Moeller.

In 1882 Hack confirmed to a certain extent the observations of Gautier, and insisted on the influence of heredity in the production of the geographical tongue.

In 1883 Lemonnier published an excellent account of what he termed *glossite exfoliatrice marginée*, notable also from containing the second observation regarding the pathological anatomy. He found in the lingual papillæ and in the underlying portions of the derma around the vessels a great number of lymphoid corpuscles disseminated or in more or less compact groups.

In 1884 Colcott-Fox reported cases of wandering rash in children, but presented nothing new.

In 1885 Kaposi described as follows, under the name of *glossodynia exfoliativa*, three types of desquamative diseases of the tongue, attended with severe neuralgic pains, occurring chiefly in women of middle age :

1. A faceted desquamation situated along the margin of the tongue.

2. A minute red dotting of the dorsum in consequence of incomplete covering of the papillæ.

3. Sharply margined bald areas, the typical picture of geographical tongue.

In 1885 Butlin, after an excellent clinical account of wandering rash, probably expressed the accepted English views in saying: "And in so far as the disease is scarcely ever observed in adults or even in children over six or seven years old, the probability is strong that it undergoes spontaneous cure, for the only alternative would be that all the children who are affected with it die. . . . I have never seen this serious final stage (drawn by Caspary) nor have met with any other confirmation of it than appeared in the presence of several furrows and fissures along the borders of the tongue of a child who suffered from that disease."

Clinical reports appeared in 1885 by de Molènes on *Desquamation en aires de la langue*; in 1887 by Kinnier on a *Circinate Eruption of the Tongue in Two Children*; by Guinon on *La desquamation épithéliale chez les enfants*; by Hartzell on *Transient Benign Plaques of the Tongue*; in 1888 by Mibilli on *Sulla esfoliazione della lingua*; in 1889 by Bayet, *Sur l'exfoliation en aires de la langue*. None of these presented any new ideas or facts of importance.

In 1889 Besnier described the affection under the title *Eczema en aires de la langue*, expressing the opinion that a connection existed between the affection and eczema seborrhoicum.

In 1889 de Molènes elaborated this view, terming the affection "eczema of the tongue," and considering it to be a manifestation of the arthritic diathesis, similar in its etiology and nature to eczema of the skin. This opinion is supported by him on purely clinical grounds, no pathological evidence being produced. The author expresses his doubt as to the correctness of Lemonnier's histological examination above noted.

In 1890 Michelson reported three cases of the long-neglected condition described by Moeller, and renamed it Moeller's superficial glossitis. All three cases occurred in individuals who had become run down and were suffering from gastric disorders. In two instances tapeworm was found, but in the third was positively absent. Diminution in taste over the healthy as well as over the affected areas was present in two cases. The clinical appearances coincided with Moeller's description, with the addition of the following phenomena: In one case reddened areas were present also on the under surface of the tongue, on the soft palate, and on the mucous membrane of the cheeks and under lip; in another case an eruption of discrete, whitish, opaque nodules of pinhead size occurred and rapidly disappeared again, leaving no traces. He considers the affection distinct from the *lingua geographica* in virtue of its occurrence only in adults, the absence of the whitish border, and the greater degree of permanence shown by the areas of swollen papillæ. A section taken from the under surface near the tip, through one of the whitish nodules

of pinhead size above described, gave the following appearances: The *tunica propria* and the upper portions of the submucous tissue were penetrated by a small-celled infiltration. The centre of the specimen corresponding macroscopically to the nodule contained a more compact aggregation of cells, separated by a line of demarcation from its surroundings. The epithelial covering above this collection of cells was entirely absent. The epithelium was thinned over the remainder of the inflamed area, most markedly in the central portions, while a gradual increase in thickness took place toward the periphery. A search for bacteria in the sections by the Gram-Günther and Weigert methods was unsuccessful.

Forchheimer, in 1891, wrote that wandering rash is essentially a children's affection; "further observations will have to be recorded before we can decide whether it extends into adult life." He notes, however, the case of a lady, twenty-four years old, in whom the process began at five, but does not state whether any changes in the appearances had occurred with advancing years.

Schech briefly repeated in 1892 the German accounts of geographical tongue and of Moeller's superficial glossitis, following Michelson in considering them distinct affections.

In 1892 Spehlman reported a series of cases of geographical tongue with an account of the histological appearances, and adding a review of the literature of the subject. He does not discuss the relationship of the disease to the affection of Moeller. Of his twenty-two cases, all but two were under nine years of age. Subjective symptoms and furrowing of the tongue were absent. Sections showed that at those places corresponding macroscopically to the epithelial desquamation the corium was totally wanting. These places were still seen to be the seat of an active process of desquamation, and were covered by a superficial exudate consisting of coagulated albumin, numerous small lymphoid cells, and desquamated, partly disintegrated epithelial cells. The polygonal epithelial cells beneath are markedly swollen, cloudy, and not stained with alum-carmin. In-between lie a few lymphoid corpuscles. These alterations extend to the deepest epithelial layers, so that at the most three or four of the lowest cell-rows of the Malpighian layer remain unaltered. At the periphery of the epithelial deficiency, where macroscopically the wall-like elevation is very often to be seen, the filiform epithelial projections of the *papillæ filiformes* are distorted and enlarged, particularly in their broad diameter, so that they are in contact with each other. At their bases small circumscribed foci of infiltration are visible. The fungiform papillæ lying between the filiform are notably elongated at the expense of their broad diameter, and simultaneously compressed by the filiform projections of the filiform papillæ, situated laterally and altered in the manner previously described. In the intact epithelial

covering, as well as in the papillary body of the fungiform papillæ, are scattered lymphoid corpuscles. The papillary layer of the *papillæ filiformes* is somewhat infiltrated; in the neighborhood of their capillaries as well as in the connective-tissue layer are heapings of lymphoid cells. In individual papillæ are dilated capillaries filled with red blood-corpuscles.

Hahn, in 1892, reported a case of Moeller's superficial glossitis occurring in a hypochondriacal married woman of twenty-five years, who presented the typical lesions as described by Moeller, associated with lingual pain of a neuralgic character. The affected areas seemed to be in proximity to two carious molars, although the removal of the teeth was not followed by benefit. The author notes the absence of mention of the condition of the teeth in the cases reported by Moeller and Michelson. Search for tapeworm was negative.

From the preceding accounts it may be seen that four types of lingual desquamation have been described, namely:

1. The condition called wandering rash.
2. The superficial glossitis of Moeller.
3. The circumscribed bald areas of irregular occurrence and course, described by Unna.
4. Desquamations of various types attended by neuralgia and hyperæsthesia, described by Kaposi as *glossodynia exfoliativa*.

In a comprehensive consideration of the phenomena represented by these types the question presents itself, What is the relation of the nervous manifestations both to the macroscopical alterations and also to similar nervous symptoms unattended by local lesions?

Kaposi mentions the occurrence of lingual neuralgia with geographical tongue, and calls this affection a form of *glossodynia exfoliativa*; but the association has been noted by no other observer. It seems, therefore, impossible to avoid the conclusion that their simultaneous occurrence is accidental.

The superficial glossitis of Moeller is represented in literature, so far as I am aware, by the records of ten cases, in all of which nervous symptoms were present. Nine of them were women of or near middle age, a class of individuals peculiarly liable to lingual neuralgia and hyperæsthesia. In some instances it is distinctly stated that the pain did not stand in relation to the lesion as regards seat, and that while distress was excited by movements of the tongue and contact with irritating substances, the locally altered areas were not more sensitive than the apparently healthy ones. In view of these facts, and since, moreover, it is possible that a rare painless and comparatively inconspicuous alteration of the lingual epithelium could have failed to attract attention until by simultaneous occurrence with severe nervous symptoms close examination of the organ was demanded, a coincidental association of the two conditions in these ten cases seems not impossible.

If the possibility be once admitted that the pathology of the conditions reported by Moeller, Michelson, and Hahn does not necessarily comprehend a painful derangement of the nerves, it follows obviously that cases presenting identical histological and clinical appearances must, although unattended by hyperæsthetic symptoms, be considered instances of Moeller's superficial glossitis.

Reverting now to the cases described by the present writer, it will be observed in Cases II. to VI that macroscopic alterations were present corresponding to those stated by Moeller to be characteristic of his affection. In Case III., also, attention should be called to the occurrence of whitened, swollen, isolated papillæ, which were noted and recorded by the writer previous to reading Michelson's account in his second case of an eruption of discrete, whitish, opaque nodules of pinhead size, which arose and rapidly disappeared again.

Furthermore, as regards the pathological anatomy, a comparison in Cases II. to V. of the histological appearances seen in the sections made by the writer with the description of Michelson's specimen, reveals no essential points of discrepancy, both exhibiting an inflammation of the superficial layers of the corium, attended by necrosis and exfoliation of the superficial epithelial cells.

The conclusion appears therefore inevitable, in the present state of our knowledge, that the cases numbered II. to V. of the present writer cannot be considered as other than instances of Moeller's superficial glossitis, although the macroscopic lesions representing this condition passed at times inseparably into others characteristic of wandering rash. If, as seems now to be indicated, these two conditions under discussion are identical in nature, this identity should be made apparent by an appropriate designation. In the present state of our ignorance of the etiology terms implying a knowledge of origin or suggesting an analogy to cutaneous phenomena are manifestly unscientific. While the privilege of permanently naming the disease is to be left to the discoverer of its cause, a temporary appellation seems desirable. The writer suggests for this purpose the term superficial wandering glossitis, *glossitis superficialis migrans*, as distinctly descriptive, while keeping within limits of pathological facts.

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## MASSAGE, MOVEMENTS, AND BANDAGING IN THE TREATMENT OF DISPLACED SEMILUNAR CARTILAGES.

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It would seem as if Nature had been somewhat negligent of her work in placing a couple of *buffers* between each knee-joint that are so easily displaced as the semilunar cartilages seem to be in some people. Many of us have doubtless supposed that these cartilages are firmly attached by their under surfaces to the head of the tibia, and this has but deepened the mystery of their displacement. It may be worth while to review briefly their anatomy and physiology, which must have become exceedingly rusty to many of us since our student-days.<sup>1</sup>

Situated on the head of the tibia and covering the anterior two-thirds of the corresponding articular surfaces, held in place by their attachments in front and behind the spine of the tibia, and further fortified

<sup>1</sup> Dr. Oliver Wendell Holmes used to say that he would not like to be examined on the muscles of the back in summer-time.